

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01100

SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract Description
- B. Contractor's use of site
- C. Work Sequence
- D. Traffic Control and Protection

1.2 CONTRACT DESCRIPTION

- A. Work of the Project includes the Sanitary and Storm Sewer Lining in various individual locations throughout the City of St. Charles. Work shall include the lining of sanitary sewers as well as the reinstatement of service laterals, sanitary sewer cleaning and pre and post construction sanitary sewer televising.
- B. Perform Work of Contract under a unit price contract with Owner in accordance with the Conditions of Contract.

1.3 CONTRACTOR'S USE OF SITE

- A. Construction Operations: Limited to areas noted on Project Location Maps.
- B. Time Restrictions for Performing Work: 7:00 AM to 7:00 PM without authorization from Owner.
 - 1. Work will not be allowed on Saturdays, Sundays, or Holidays without authorization from Owner.
- C. Utility Outages and Shutdowns: No longer than four hours for any single water service. Owner shall be notified of work at least 48 hours in advance.
- D. Contractor shall obtain necessary bond, license, and permits required for construction or maintenance operations on any City street, alley, or roadway by the Municipal Code of the City of St. Charles and IDOT.
- E. Contractor may stage materials at a location designated by the City of St. Charles. The City of St. Charles will not be responsible for coordinating and accepting delivery of materials. The City of St. Charles will not be responsible for the care and safety of materials stored at their site.

1.4 WORK SEQUENCE

- A. Construct Work in order to minimize service outages to less than four hours total for any single service during the construction period, coordinate construction schedule and operations with Owner.

1.5 TRAFFIC CONTROL AND PROTECTION

- A. Local residential traffic occupies premises during entire construction period for conducting normal operations; cooperate with public in all construction operations to minimize conflict, and to facilitate public usage.
- B. Conduct Contractor's operations to ensure least inconvenience to general public.
- C. Contractor shall comply with Municipal Code of the City of St. Charles requiring compliance with Manual on Uniform Traffic Control Devices, Latest Edition with all subsequent amendments.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01100

SECTION 01200

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Applications for Payment.
- B. Change Procedures.
- C. Defect Assessment.
- D. Unit Prices.
- E. Unit Price Schedule.

1.2 APPLICATIONS FOR PAYMENT

- A. Submit three (3) copies of each application on EJCDC 1910-8-E. Contractor's electronic media driven form may be acceptable if approved by Owner.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit with transmittal letter as specified for Submittals in Section 01330 – Submittal Procedures.
- F. Submit all waivers.
- G. Substantiating Data: When Owner requires substantiating information, submit data justifying dollar amounts in question. Include the following with the application:
 - 1. Partial release of liens from major subcontractors and vendors.
 - 2. Affidavits attesting to off-site stored products.

1.3 CHANGE PROCEDURES

- A. Submittals: Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. The Owner will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time by issuing supplemental instructions in writing.
- C. The Owner may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications. Contractor shall complete the request form indicating any change in Contract Price and changes in

Contract Time for executing the change. Contractor will prepare and submit an estimate within fourteen (14) days.

- D. The Contractor may propose changes by submitting a request for change to the Owner describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other Contractors. Document any requested substitutions in accordance with Section 01600.
- E. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for Change Order as approved by Owner.
- F. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under Work Directive Change. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- G. Work Directive Change: Owner may issue directive on EJCDC 1910-8-F Work Directive Change signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in Work, and designate method for determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- H. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of Contract. Owner will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- I. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- J. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.
- K. Change Order Forms: See Section 00530 – Change Order.
- L. Execution of Change Orders: Owner will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- M. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
 - 3. Promptly enter changes in Project Record Documents.

1.4 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.**
- B. If, in the opinion of the Owner, it is not practical to remove and replace the Work, the Owner will direct appropriate remedy or adjust payment.**
- C. The defective Work may remain, but unit sum/price will be adjusted to a new sum/price at the discretion of the Owner.
- D. The defective Work will be partially repaired to instructions of the Owner, and unit sum/price will be adjusted to a new sum/price at the discretion of the Owner.
- E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. The authority of the Owner to assess defects and identify payment adjustments is final.**
- G. Non-Payment for Rejected Products: Payment will not be made for rejected products for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels or required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.5 UNIT PRICES

- A. Authority: Measurement methods are delineated in the individual specification sections.
- B. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- C. Take measurements and compute quantities. Owner will verify measurements and quantities.
- D. Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment.
 - 1. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.
 - 2. If the actual Work requires a 25 percent or greater change in quantity than those quantities indicated, the Owner or Contractor may claim for a Contract Price adjustment.

- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals, erection, application or installation of item of the Work, overhead and profit.
- F. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Owner multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.
- G. Measurement of Quantities:
 - 1. Weigh Scales: Inspected, tested and certified by the applicable State Weights and Measures department within the past year.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
 - 3. Metering Devices: Inspected, tested and certified by the applicable State department within the past year.
 - 4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
 - 5. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
 - 6. Measurement by Area: Measured by square dimension using mean length and width or radius.
 - 7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 - 8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

1.6 UNIT PRICE SCHEDULE

A. MOBILIZATION

- 1. Unit of Measure: Lump Sum.
- 2. Method of Measurement: Lump sum as directed by OWNER.
- 3. Basis of Payment: Shall be paid for at the Contract Unit Price for Mobilization.

B. TRAFFIC CONTROL AND PROTECTION

- 1. Unit of Measure: Lump Sum.
- 2. Method of Measurement: Lump sum as directed by Owner.
- 3. Basis of Payment: Shall be paid for at the Contract Unit Price for Traffic Control and Protection.

C. TELEWISE, CLEAN & LINE SANITARY SEWERS

- 1. Unit of Measure: Lineal Foot.
- 2. Method of Measurement: By lineal foot measured along the pipe centerline from manhole wall to manhole wall for sewers lined. When lining operations are to pass through an intermediate manhole, payment lengths shall exclude length through manhole.
- 3. Basis of Payment: At the Contract Unit Price per lineal foot of diameter specified for Telewise, Clean and Line Sanitary Sewers.
- 4. Includes Costs of:
 - a. Product data for lining specialties.
 - b. All labor, equipment and materials.
 - c. All dewatering.

- d. All bypass pumping.
- e. Installation.
- f. Cutting of Protruding Taps.
- g. Pre and Post Lining Television Inspection and Reports.
- h. Sanitary Sewer Cleaning **and Heavy Cleaning including root cutting.**
- i. Clean up and disposal of excess materials.
- j. Final inspection.
- k. Restoration of disturbed areas.
- l. All other work or appurtenances needed to complete the project.

D. REINSTATE LATERALS

- 1. Unit of Measure: Each.
- 2. Method of Measurement: By each number of existing laterals reinstated.
- 3. Basis of Payment: At the Contract Unit Price per each lateral reinstated.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01200

SECTION 01300

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Preconstruction meeting.
- C. Progress meetings.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation and interdependent construction elements.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service operating equipment.
- C. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
- D. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 PRECONSTRUCTION MEETING

- A. Owner will schedule a preconstruction meeting after Notice of Award.
- B. Attendance Required: Owner and Contractor.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties involved.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants with two copies to Owner, participants and those affected by decisions made.

1.4 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at intervals requested by the Owner.
- B. Owner will make arrangements for meetings, prepare agenda with copies for participants and preside at meetings.
- C. Attendance Required: Job superintendent, major subcontractors and suppliers, and Owner, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems and decisions.
 - 4. Identification of problems which may impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrications and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedules and coordination.
 - 13. Other business relating to Work.
- E. Record minutes and distribute copies within one week after meeting to participants, with two copies to Owner, participants and those affected by decisions made.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01300

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section expands administrative and procedural requirements for submittals for review, information, or for project closeout, each described to permit direct reference from individual specification sections. These requirements include:
 - 1. Submittal procedures.
 - 2. Construction progress schedules.
 - 3. Proposed products list.
 - 4. Product data.
 - 5. Shop drawings.
 - 6. Samples.
 - 7. Design data.
 - 8. Test reports.
 - 9. Certificates.
 - 10. Manufacturer's instructions.
 - 11. Manufacturer's field reports.

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Owner accepted form.
- B. Submittals should not be marked with a highlighter. Instead, use arrows to denote specific selections throughout the submittal.
- C. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- D. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- E. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- F. Schedule submittals to expedite the Project, and deliver to OWNER at business address. Coordinate submission of related items.
- G. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- H. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work.
- I. Allow space on the submittals for Contractor and Owner review stamps or comments.

- J. When revised for submission, identify all changes made since previous submission.
- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- L. Submittals not requested may not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit preliminary outline Schedules within 15 days after date established in Notice to Proceed for coordination with Owner's requirements. After review, submit detailed schedules within 15 days modified to accommodate revisions recommended by Owner.**
- B. Submit revised Progress Schedules with each Application for Payment.**
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Submit a computer generated horizontal bar chart with separate line for each section of Work, identifying first work day of each week.
- F. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including products identified under Allowances, and dates reviewed submittals will be required from OWNER. Indicate decision dates for selection of finishes.
- I. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- J. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- K. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect including the effect of changes on schedules of separate contractors.

1.4 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

- A. Product Data: Submit to Owner for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- B. Submit the number of copies which the Contractor requires, plus three copies which will be retained by the Owner.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 – Execution Requirements.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Submit to Owner for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. Submit the number of opaque reproductions which Contractor requires, plus three copies which will be retained by Owner.
- C. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 – Execution Requirements.

1.7 SAMPLES

- A. Samples: Submit to Owner for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
 - 1. Submit to Owner for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from the full range of manufacturers' standard colors, in custom colors selected, textures, and patterns for Owner selection.
- C. Include identification on each sample, with full Project information
- D. Submit the number of samples specified in individual specification sections; one of which will be retained by Owner.
- E. Reviewed samples which may be used in the Work are indicated in individual specification sections

- F. Samples will not be used for testing purposes unless specifically stated in the specification section.
- G. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record drawings described in Section 01700 – Execution Requirements.

1.8 DESIGN DATA

- A. Submit for Owner's knowledge as contract administrator.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.9 TEST REPORTS

- A. Submit for Owner's knowledge as contract administrator.
- B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Owner, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to Owner.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing to Owner in quantities specified for Product Data
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Owner's benefit as contract administrator.
- B. Submit report in duplicate within 30 days of observation to Owner for information.
- C. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01330

SECTION 01400

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Tolerances.
- C. References.
- D. Testing and inspection services.
- E. Examination.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturer's instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Owner before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on Shop Drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion and/or disfigurement.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Owner before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Should specified reference standards conflict with Contract Documents, request clarification from the Owner before proceeding.
- E. The contractual relationships, duties, or responsibilities of the parties in Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 TESTING AND INSPECTION SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency or laboratory acceptable to Owner to perform specified testing.
 - 1. Prior to start of Work, submit testing laboratory name, address, telephone number, and names of full time and responsible officer.
 - 2. Submit a copy of the report of laboratory facilities most recent inspection with memorandum of remedies of deficiencies reported by inspection.
- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Owner.
 - 1. Laboratory: Authorized to operate in the State of Illinois.
 - 2. Laboratory Staff: Maintain full time registered engineer or specialist on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Reports shall be submitted by independent firm to Owner and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
 - 1. Submit final report indicating correction of Work previously reported as non-compliant.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Owner and independent firm 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

- F. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Owner. Payment for re-testing or re-inspection will be charged to the Contractor at no additional compensation.
- G. Agency Responsibilities:
 - 1. Test samples of mixes submitted by Contractor.
 - 2. Provide qualified personnel at site. Cooperate with Owner and Contractor in performance of services.
 - 3. Perform specified sampling and testing of products in accordance with specified standards.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 5. Promptly notify Owner and Contractor of observed irregularities or non-conformance of Work or products.
 - 6. Perform additional tests required by Owner.
- H. Agency Reports: After each test, promptly submit two copies of report to Owner and to Contractor. When requested by Owner, provide interpretation of test results. Include the following:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection of test.
 - 8. Date of test.
 - 9. Results of test.
 - 10. Conformance with Contract Documents.
- I. Limits on Testing Authority:
 - 1. Agency or laboratory may not release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Agency or laboratory may not approve or accept any portion of Work.
 - 3. Agency or laboratory may not assume any duties of Contractor.
 - 4. Agency or laboratory has no authority to stop the Work.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.

D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

END 01400

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Construction Facilities:
 - 1. Vehicular access.
 - 2. Parking.
 - 3. Progress cleaning and waste removal.
 - 4. Traffic regulation.
- B. Temporary Controls:
 - 1. Barriers.
 - 2. Water control.
 - 3. Dust control.
 - 4. Erosion and sediment control.
- C. Removal of utilities, facilities and controls.

1.2 VEHICULAR ACCESS

- A. Extend and relocate vehicular access as Work progress requires, provide detours as necessary for unimpeded traffic flow.
- B. Provide unimpeded access for emergency vehicles. Maintain 20-foot wide driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants and control valves free of obstructions.
- D. Provide and maintain access to driveways.
- E. Provide means of removing mud from vehicle wheels before entering streets.
- F. Designated existing on-site roads may be used for construction traffic.

1.3 PARKING

- A. Arrange for temporary parking areas to accommodate construction personnel.
- B. Locate as approved by Owner.
- C. When site space is not adequate, provide additional off-site parking.
- D. Use of existing on-site streets and driveways used for construction traffic is permitted. Tracked vehicles not allowed on paved areas.
- E. Do not allow heavy vehicles or construction equipment in parking areas.

F. Maintenance:

1. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
2. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

G. Removal, Repair:

1. Remove temporary materials and construction before Substantial Completion.
2. Remove underground work and compacted materials to a depth of 2 feet. Fill and grade site as specified.
3. Repair existing facilities damaged by use, to original condition.

H. Mud From Site Vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.4 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

1.5 TRAFFIC REGULATION

A. Signs, Signals, and Devices:

1. Post Mounted and Wall Mounted Traffic Control and Informational Signs: As approved by local jurisdictions.
2. Automatic Traffic Control Signals: As approved by local jurisdictions.
3. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
4. Flagperson Equipment: As required by local jurisdictions.

B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

D. Haul Routes:

1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
2. Confine construction traffic to designated haul routes.
3. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

E. Traffic Signs and Signals:

1. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

2. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
3. Relocate as Work progresses to maintain effective traffic control.

F. Removal:

1. Remove equipment and devices when no longer required.
2. Repair damage caused by installation.

1.6 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and covered walkways required by authorities having jurisdiction for public rights-of-way.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.7 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.8 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.9 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01500

SECTION 01570

TRAFFIC CONTROL AND PROTECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This item of work shall include furnishing, installing, maintaining, relocating and removing traffic control and protection devices temporarily or permanently installed for the purpose of regulating, warning, directing or protecting traffic during the construction or maintenance of this improvement. All traffic control and protection shall be executed in conformance with all Kane County DOT and Illinois DOT provisions.

1.2 MEASUREMENT AND PAYMENT

A. Method of Payment:

- 1. This item of work will be measured on a lump sum basis for furnishing, installing, maintaining, relocating and removing the traffic control devices required in the plans and these specifications.

B. Basis of Payment:

- 1. This work will be paid for at the Contract Lump Sum price for Traffic Control and Protection, which price shall be payment in full for all labor, materials, transportation, handling and incidentals necessary to furnish, install, maintain, and remove all traffic control devices indicated in the Plans and Specifications. The salvage value of the materials removed shall be reflected in the Bid price for this item.
- 2. Delays to the Contractor caused by complying with these requirements will be considered incidental to the item for Traffic Control and Protection, and no additional compensation will be allowed.

C. Payment Adjustments:

- 1. The OWNER may require additional traffic control to be installed in accordance with standards and/or designs other than those included in the plans or specifications. In such cases, the standards and or designs will be made available to the Contractor at least one week in advance of the change in traffic control. Payment for any additional traffic control required will be in accordance with Article 109.04 of SSRBC.
- 2. Revisions in the phasing of construction of maintenance operations, requested by the Contractor, may require traffic control to be installed in accordance with standards and/or designs other than those included in the plans or specifications. Revisions or modifications to the traffic control shown in the contract shall be submitted by the Contractor for approval by the OWNER. No additional payment will be made for a Contractor requested modification.
- 3. The value of the work items used in calculating the increase or decrease will include only items which have been added to or deducted from the contract under Article 104.02 of SSRBC and only items which require use of Traffic Control and Protection.

4. In the event the Owner cancels or alters any portion of the contract which results in the elimination or non-completion of any portion of the work, payment for partially completed work will be made in accordance with Article 109.06 of SSRBC.

D. Deficiency Charges:

1. The Contractor is expected to comply with the requirements of SSRBC, contract plans and these Special Provisions concerning traffic control and protection. If the Contractor fails to comply with the any of these requirements, contract plans, or these Special Provisions concerning traffic control, Owner shall execute such work as may be deemed necessary to correct deficiencies and the cost thereof shall be deducted from compensation due or which may become due the Contractor under the contract.
2. Failure to comply with directions from the Owner for corrections or changes to traffic control devices will result in a charge of \$1,000.00 per day payable to the Owner plus any additional fines imposed by other parties.

1.3 REFERENCES

- A. Furnish and maintain traffic control and protection in accordance with applicable provisions of current "Standard Specifications for Road and Bridge Construction (IDOT)", the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)", the "Standard Specifications for Traffic Control Items" and other Highway Standards adopted by the Illinois Department of Transportation.
- B. Refer to IDOT Section 701. Work Zone Traffic Control and the following Highway Standards for specific requirements for public convenience and safety:
 1. HIGHWAY STANDARDS:
 - a. 701501: Lane Closure, 2L 2W, Undivided, For Speeds < 45 MPH
 - b. 702001: Traffic Control Devices
- C. Comply with the ordinances and requirements of the City of St. Charles, the Kane County Division of Transportation, the Illinois Department of Transportation and other local authorities having jurisdiction.

1.4 QUALITY ASSURANCE

- A. At the preconstruction meeting, the Contractor shall furnish the name of the individual in his direct employ who is to be responsible for the installation and maintenance of the traffic control for this project. If the actual installation and maintenance are to be accomplished by a Subcontractor, consent shall be requested at the time of the preconstruction meeting in accordance with IDOT Article 108.01. This shall not relieve the Contractor of the foregoing requirement for a responsible individual in his direct employ.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 TRAFFIC CONTROL AND PROTECTION

- A. Traffic Control and Protection shall be provided as called for in the plan, these Special Provisions, applicable Highway Standards, applicable sections of the Standard Specifications, or as directed by the Owner.
- B. The governing factor in the execution and staging or work for this project is to provide the motoring public with the safest possible travel conditions along the roadway through the construction zone. The Contractor shall arrange his operations to keep the closing of any lane of the roadway to a minimum.
- C. All Traffic Control devices used on this Project shall conform to the Plans, Special Provisions, Traffic Control Standards, Traffic Specifications and the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways." No modifications of these requirements will be allowed without prior written approval of the OWNER.
- D. Traffic Control devices include: signs and their supports, signals, pavement markings, barricades with sand bags, channelizing devices, warning lights, arrow-boards, flaggers, or any other device used for the purpose of regulating, warning or guiding traffic through or around the construction zone.
- E. The initial erection of a traffic control installation shall not include devices that are bent, scratched, faded, worn, dirty or otherwise present a shabby appearance. The Contractor is required to conduct routine inspections of the worksite at a frequency that will allow for the prompt replacement of any traffic control device that has become worn or damaged to the extent that it no longer conforms to the shape, dimensions, color and operational requirements of the MUTCD, and the Traffic Control Standards or will no longer present a neat appearance to motorists. A sufficient quantity of replacement devices, based on vulnerability to damage, shall be readily available to meet this requirement.
- F. The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to advance warning signs during construction operations in order to keep lane assignment consistent with barricade placement at all times. The Contractor shall cover all traffic control devices that are inconsistent with detour or lane assignment patterns during the transition from one construction phase to another.
- G. The Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide a uniform traffic detour patterns. When directed by the OWNER, the Contractor shall remove all traffic control devices which were furnished, installed maintained by him under this contract, and such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the OWNER.
- H. The Contractor shall ensure all traffic control devices installed by him are operational 24 hours a day, including Sundays and holidays.

3.2 SIGNS

- A. Construction signs referring to daytime lane closures during working hours shall be removed or covered during non-working hours.

- B. Throughout the duration of this project, all existing traffic signs shall be maintained by the Contractor. All provisions of Article 107.25 of the Standard Specifications shall apply, except the third paragraph shall be revised to read: "The Contractor shall maintain, furnish and replace at his own expense, any traffic sign or post which has been damaged or lost by the Contractor or a third party."
- C. "Fresh Oil" signs (W21-2) shall be used when prime is applied to pavement that is open to traffic. The signs are to remain until tracking of the prime ceases. The sign shall be erected a minimum of 500 feet preceding the start of the prime and on all side roads within the posted area. The "Fresh Oil" sign on the side of the road shall be posted a minimum of 200 feet from the mainline pavement.

3.3 BARRICADES

- A. Any drop off greater than three inches, but less than six inches within eight feet of the pavement edge shall be protected by Type I or II barricades equipped with mono-directional steady burn lights at 100 foot center to center spacing. If the drop off within eight feet of the pavement edge exceeds six inches, the barricades mentioned above shall be placed at 50 foot center-to-center spacing. Barricades that must be placed in excavated areas shall have leg extensions installed such that the top of the barricade is in compliance with the height requirements of Standard 702001.
- B. Check barricades shall be placed in work areas perpendicular to traffic every 100 feet, one per lane and per shoulder, to prevent motorists from using work areas as a traveled way. Two additional check barricades shall be placed in advance of each patch excavation or any other hazard in the work area, the first at the edge of the open traffic lane and the second centered in the closed lane. Check barricades shall be Type I or II and equipped with a flashing light.
- C. Vertical panels, drums or other delineating devices may be substituted for Type I or II barricades with the approval of the Engineer.

3.4 DIRECTION OF OPERATIONS

- A. Placement of all signs and barricades shall proceed in the direction of flow of traffic. Removal of all signs and barricades shall start at the end of the construction areas and proceed toward oncoming traffic unless otherwise directed by the Engineer.

3.5 PEDESTRIAN SIDEWALK CONTROL

- A. The Contractor shall install, maintain and remove necessary signs and barricades needed to direct pedestrians to usable sidewalks and walkways during the construction.
- B. All barricades shall be Type I or H equipped with a flashing light. At each point of closure, sufficient numbers of barricades shall be used to completely close the sidewalk to pedestrian movement. Where construction activities involve sidewalks on both sides of the street, the work shall be staged so that both sidewalks are not out of service at the same time.

3.6 PUBLIC CONVENIENCE AND SAFETY

- A. The Contractor shall provide a telephone number where a responsible individual can be contacted on a 24-hour-a-day basis to receive notification of any deficiencies regarding traffic control and protection. The Contractor shall dispatch men, materials and equipment to correct any such deficiencies. The Contractor shall respond to any call from the City concerning any request for improving or correcting traffic control devices and begin making the requested repairs within two hours from the time of notification.
- B. When traveling in lanes open to public traffic, the Contractor's vehicles shall always move with and not against or across the flow of traffic. These vehicles shall enter or leave work areas in a manner that will not be hazardous to, or interfere with traffic and shall not park or stop except within designated work areas. Personal vehicles shall not park within the right-of-way except in specific areas designated by the Engineer.
- C. The Contractor shall maintain at least one lane of traffic at all times on two lane roads and at least one lane in each direction on 4 or more lane roads, during the construction of this project. The Contractor shall also maintain entrances and side roads along the proposed improvement. Interference with traffic movements and inconvenience to owners of abutting property and the public shall be kept to a minimum. Any delays or inconveniences caused the Contractor by complying with these requirements shall be considered, as incidental to the contract, and no additional compensation will be allowed.
- D. One-way traffic with proper flagging and signing will be permitted upon approval by the OWNER between 9:00 a.m. and 4:00 p.m. with two-way traffic being maintained at all other times.
- E. Access for driveways shall be maintained at all times during construction. The Contractor shall notify the property owner of the loss of driveway use a minimum of 48 hours before the driveway access loss.
- F. On two lane roads, the Contractor is to plan his work so that there will be no open holes in the pavement and that all barricades will be removed from the pavement during non-work hours.
- G. On four or more lane highways, there shall be no open holes in the pavement being used by the traveling public. Lane closures, if allowed, will be in accordance with the applicable standards and any staging details shown in the Plans.
- H. Unless otherwise specified in the plans, the maximum length of lane closure on multilane highways shall not exceed one day's production.
- I. The Contractor's equipment shall not be allowed on the pavement open to traffic. The Contractor shall not park on any equipment or vehicles unnecessarily on the shoulder. Whenever work is in progress adjacent to the traveled way, the Contractor shall provide necessary traffic signs to warn the public and protect the work as required herein or as provided in the Standards. The Contractor shall remove all equipment from the shoulders and medians after work hours during the week and on weekends.

- J. No road closure or restriction shall be permitted except those covered by Standard Designs without written approval by the Owner.

3.7 MAINTENANCE OF ROADWAYS

- A. Beginning on the date that the Contractor begins work on this project, he shall assume responsibility for the normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the OWNER, but shall **not** include snow removal operations. Traffic control and protection for this work will be provided by the Contractor as required by the OWNER.
- B. The work involved in maintaining the existing pavement as above specified will be considered as incidental to the Contract, and the traffic control and protection required for this work shall be considered incidental to the contract.

3.8 PROTECTION OF DRAINAGE FACILITIES DURING CONSTRUCTION

- A. Unless otherwise noted in the contract plans, the existing drainage facilities shall remain in use during the period of construction.
- B. Location of existing drainage structures and sewers, as shown on the contract plans, are approximate. Prior to commencing work, the Contractor, at his own expense, shall determine the exact location of existing structures that are within the proposed construction site.
- C. All drainage structures are to be kept free from any debris resulting from construction operations. All work and material necessary to prevent accumulation of debris in the drainage structures resulting from construction operations shall be removed at the Contractor's own expense, and no extra compensation will be allowed.
- D. The Contractor shall take all necessary precautions when working near or above existing sewers in order to protect these pipes during construction from any damage resulting from his operations. Existing sewers damaged because of noncompliance with this provision shall be replaced as directed by the OWNER, in accordance with Section 550 of the Standard Specifications and at the Contractor's own expense, and no extra compensation will be allowed.
- E. During construction, if the Contractor encounters or otherwise becomes aware of any sewers, underdrains or field drains within the right of way other than those shown on the plans, he shall so inform the OWNER who shall direct the work necessary to maintain or replace the facilities in service and protect them from damage during construction if maintained. Existing facilities to be maintained that are damaged because of noncompliance with this provision shall be replaced at the Contractor's own expense. Should the OWNER have directed the replacement of a facility, the necessary work and payment shall be done in accordance with Section 550 or 601 and Article 104.02 respectively of the Standard Specifications.

SECTION 01600

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Product substitution procedures.

1.2 PRODUCTS

- A. Provide products of qualified manufacturers suitable for intended use. Provide products of each type by a single manufacturer unless specified otherwise.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products in accordance with manufacturer's instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

- G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement or damage.
- H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.6 PRODUCT SUBSTITUTION PROCEDURES

- A. Owner will consider requests for Substitutions only within 30 days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the Substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit Shop Drawings, Product Data, and certified test results attesting to the proposed product equivalence. Burden of proof is on the party submitting the proposal.
 - 3. The Owner will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01600

SECTION 01700

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Protecting installed construction
- D. Project record documents.
- E. Product Warranties and Product Bonds

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner's review.
- B. Provide submittals to Owner that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean construction debris from sanitary and storm systems.
- C. Clean site; sweep paved areas, rake clean landscaped surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Prohibit traffic from landscaped areas.

1.5 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Location Maps.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
 - 2. Field changes of dimension and detail.
 - 3. Details not on original Contract drawings or Location Maps.
- G. Submit documents to Owner with claim for final Application for Payment.

1.6 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers and manufacturers.
- C. Verify that documents are in proper form, contain full information and are notarized.
- D. Co-execute submittals when required.
- E. Submit prior to final Application for Payment.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END 01700

DIVISION 13

SPECIAL CONSTRUCTION

SECTION 13514

REHABILITATION OF UNDERGROUND SEWERS

PART 1 GENERAL

1.1 WORK INCLUDES

- A. Cleaning of sewer pipe system.
- B. Sewer pipe system inspection by closed-circuit television.
- C. Lining sewer pipe.
- D. Reinstatement of service laterals.

1.2 REFERENCES

- A. ASTM D5813 – Cured-in-Place Thermosetting Resin Sewer Pipe)
- B. ASTM F1216 – Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.
- C. ASTM F1743 – Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)

1.3 SUBMITTALS

- A. Submit in accordance with Section 01330.
- B. Shop Drawings:
 - 1. Submit for lining materials
 - 2. Indicate liner dimensional information for each pipe size.
- C. Product Data: Submit manufacturer's information on liner material and resins including Material Safety Data Sheets (MSDS).
- D. Report
 - 1. After completion of work, furnish to owner DVD's showing location of improvements, pipe condition before and after lining improvements as well as bound television inspection forms. Television inspection forms should include:
 - a) Date and time that inspection is performed.
 - b) Identification of operator.
 - c) Location.
 - 1) General Location.
 - 2) Upstream manhole number.
 - 3) Downstream manhole number.
 - 4) Paved, unpaved or other.
 - d) Pipe information.
 - 1) Pipe diameters.
 - 2) Materials.
 - 3) Length, total.

- 4) Length between joints.
- 5) Depth.
- e) Defects in system.
 - 1) Location.
 - 2) Comments.
- f) Location of laterals.
- g) Space for inspector to draw sketch, if necessary.
- h) DVD number and index.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01700 - Execution Requirements: Closeout procedures.

1.5 WARRANTY

- A. Work warranted for period of one year after final completion and final written acceptance of entire project by Engineer.
 - 1. Locate and re-seal all renewed leakage during warranty period.
- 2. Contractor not responsible for leaks developing from structural failure of pipeline from settlement not attributable to his operations.

PART 2 PRODUCTS

2.1 CLEANING SEWERS

- A. Equipment:
 - 1. Provide all equipment necessary for proper rodding, bucketing, brushing and flushing of sewers. **Provide heavy cleaning as required at no additional compensation.**
 - 2. Obtain water hydrant meter from the City of St. Charles; pay for water used at no additional compensation. **The largest diameter water hydrant meter supplied by the City shall be 1" and can be obtained for a refundable deposit of \$575.00.**
- B. Cleaning: Defined as cleaning not requiring more than five (5) passes through the line with high-pressure jetting equipment.
 - 1. Balls, scooters, high-pressure water jetting equipment, brushes, swabs, bucket machines, scrapers, and augers permitted.
- 2. When bucket machines and buckets are used, provide properly sized flexible cable to prevent breakage when hanging cleaning equipment within sewer lines.
- C. Heavy Cleaning: Defined as cleaning required where it has been determined that large deposits of debris or root growth exists within the sewer lines and cleaning would require more than five (5) passes through the line with high-pressure jetting equipment.
 - 1. Bucket machines, scrapers and augers permitted.
 - 2. When bucket machines and buckets are used, provide properly sized flexible cable to prevent breakage when hanging cleaning equipment within sewer lines.

2.2 TELEVISION INSPECTION

- A. Equipment:

1. Camera and Monitor: Color camera with rotating lens to look up laterals, capable of transmitting and receiving minimum 600 resolution lines picture; minimum 17 inch monitor located inside mobile TV studio; remote control for brilliance and focus and camera movement. The camera shall be specifically designed and constructed for sewer inspection. The camera shall be operative in conditions of 100 percent humidity. Focal distance shall be adjustable through a range from 1-inch to infinity. The camera shall be mounted on skids suitably sized for each pipe diameter to be investigated. Lighting for the camera shall minimize reflective glare. Camera and lighting quality shall be suitable to provide a clear, continuously in-focus picture of the entire inside peripheries of the sewer pipe for all conditions encountered during the work.
2. DVD: High quality color in DVD format.
 - a) Recorder: Capable of recording sound and video information; with speed and electronics standard with electronics industry.
 - b) Playback: Video playback model suitable for DVD used.
3. Mobile Studio: Above-ground, large enough to accommodate up to 4 people for viewing while inspection is in process; with control panel operated by skilled technician; accessible to Owner or Owner's Representative at all times.
4. **Provide all electrical wiring and power source; pay for electrical power.**
5. Footage meter or means of locating camera with continuous display on TV DVD. The remote reading footage counter shall be accurate to at least 0.20 feet over the length of the particular section being inspected and shall be mounted over the television monitor.
6. **Camera operator to stop, turn, slowly orbit 360 degrees and look up each lateral encountered.**

B. Flow through sewer shall be less than 25% of maximum flow when televising sewer, not to exceed 3".

1. If required, Contractor will use plugs or flow control devices to achieve above requirements without detrimental effects to laterals, sewer system, or sewer service.

C. Provide televising for one sewer section at a time.

1. If entire sewer section cannot be televised from one manhole, inspection shall be attempted from other end.

D. Sewer defects or infiltration source shall be identified on tape recording and TV inspection form, and accurate distances from center of manhole shall be provided for each sewer defect or infiltration source, and each lateral.

E. If camera can not pass a protruding lateral or similar obstruction, notify Owner or Engineer immediately. Attempt to TV from other end if possible.

F. All property disturbed by work shall be restored to original state.

G. Any out-of-focus video recordings or portions thereof shall be rejected and the section re-televised at the Contractor's own expense.

2.3 CURED-IN-PLACE-PIPE (CIPP)

A. Manufacturers:

1. Insituform
2. In-Liner

3. National Liner
 4. Substitutions to be considered in accordance with Section 1600.
-
- B. The liner tube shall consist of one or more layers of absorbent non-woven felt fabric meeting the requirements of ASTM F1216, latest revisions.
 - C. The liner tube shall be constructed to withstand installation pressures and curing temperatures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections.
 - D. The wet out tube shall have a relatively uniform thickness that when compressed at installation pressures will equal or exceed the calculated minimum design CIPP wall thickness.
 - E. The liner tube shall be manufactured to a size that when installed will tightly fit the internal circumference and length of the original pipe.
 - F. The outside layer of the tube shall be coated with an impermeable, flexible membrane that will contain the resin and allow the resign impregnation (wet out) procedure to be monitored.
 - G. No material shall be included in the liner tube that may cause delamination or peeling in the cured CIPP. No dry or unsaturated layers shall be evident.
 - H. The wall color of the interior pipe surface of CIPP after installation shall be relatively light reflective color so that a clear examination with closed circuit television inspection equipment may be made.
 - I. The liner tube shall be chemically resistant to withstand exposure to domestic sewage per the requirements of ASTM F1216.
 - J. The liner tube shall provide a watertight seal between the liner pipe and sewer.
 - K. The resin system shall be a corrosion resistant polyester or vinyl ester system that includes all required catalysts that when cured within the tube, create a composite that satisfies the requirements of ASTM F1216 and ASTM D5813.

PART 3 EXECUTION

3.1 NOTIFICATION

- A. Keep Owner and Engineer informed as accurately as possible as to when work commences and how it will proceed.
- B. Prior to commencing any work, give the Owner and Engineer a minimum 48 hours advance notification.
- C. Coordinate with Owner for location of abandoned laterals; abandoned laterals need not be reinstated if notified by Owner.
- D. Jobs shall only be lined during light rains, as many sections have heavy infiltration.

3.2 CLEANING

- A. Perform cleaning required for installation of lining material.
- B. Provide 95% removal of dirt, stones, debris, roots and other materials from the sewer to be cleaned.
- C. Root cut as necessary at no additional compensation. Verify with Owner or Engineer.
- D. Verify with Owner or Engineer that heavy cleaning is necessary before heavy cleaning.
- E. Perform heavy cleaning, including root cutting, required for installation of lining material at no additional compensation.**
- F. Deliver waste material to City of St. Charles Main Wastewater Treatment Facility or landfill.
 - 1. Remove all solids that may tend to settle out downstream.
- G. All property disturbed by work shall be restored to original state at no additional compensation.

3.3 TELEVISION INSPECTION

- A. Perform closed-circuit television inspection before installation of lining material. Camera operator to stop, turn, **slowly orbit 360 degrees** and look up each lateral encountered.
- B. After the sewer lining is complete as required, the Contractor shall reestablish service connections to 100% of the original opening. Service reinstatement shall be done without excavation from the interior of the pipe by means of a television camera and a remotely controlled cutting device. The edges of the service cut-ins shall be smooth and even. There shall be no rough or jagged edges. The entire circumference (360*) of the sewer service reinstatement shall be televised and recorded on the post-lining recording. Over- cutting, under-cutting or exposed gravel shall not be permitted.
- C. The video operator must have at least one year of experience in televising sewer mains.
- D. Flow through the sewer shall be no greater than one-third of the pipe diameter.
 - 1. If required, Contractor shall use plugs or flow control devices to achieve above requirements without detrimental effects to laterals, sewer system or sewer service.
- E. Provide televising for one sewer section at a time.
 - 1. If entire sewer section cannot be televised from one manhole, inspection shall be attempted from other end.
- F. Contactor shall avoid any pauses over 30 seconds.
- G. If camera cannot pass a protruding lateral or similar obstruction, notify Owner or Engineer immediately. Attempt to TV from other end.

- H. The Contractor shall turn over original DVD's with TV inspection report after completing work to receive pay requested. Inspection reports and DVDs are to be completed and submitted in sequence.
- I. Any out-of-focus video recordings or portions thereof shall be rejected and the section re-televised at the Contractor's own expense.
- J. The entire televised inspection process shall be available to be performed in the presence of the City's Representative.
- K. All property disturbed by work shall be restored to original state at no additional compensation.

3.4 SEWER PREPARATION

- A. Removal all protruding laterals, mineral deposits, roots, debris necessary for repair of sewer. **Work shall be considered incidental to the cost of cleaning and lining sanitary sewers.**
- B. If obstruction cannot be removed by conventional sewer cleaning, notify the Owner or Engineer.

3.5 LINING SEWERS

- A. Installation shall be in accordance with ASTM F1216 and ASTM F1743 and manufacturer's recommendations.
- B. Notify sewer users 24 hours in advance of construction by door-to-door announcements.**
- C. Coordinate with Owner to determine which inactive service laterals do not need reinstatement.
- D. Provide for flow around sections of pipe designated for lining.
- E. Repair broken or misaligned pipe at manhole wall with seal compatible with liner.
- F. Resin Impregnation
 - 1. The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the potential loss of resin during installation through cracks and irregularities in the original pipe wall, as applicable.
- G. Tube Insertion
 - 1. The wet out tube shall be positioned in the pipeline using the inversion method as defined in ASTM F1216. The tube shall be inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.
- H. Curing shall be accomplished by utilizing hot water under hydrostatic pressure or steam pressure in accordance with the manufacturer's recommended cure schedule. A cool-

down process shall be conducted that complies with the resin manufacturer's specification.

- I. Reconnect all existing live service connections without excavation by means of television camera and cutting device; re-establish to minimum 90 percent capacity.
Over cuts, under cuts and exposed gravel shall be deemed unacceptable
- J. Install within reasonable amount of time so that residents will be minimally inconvenienced
- K. All property disturbed by work shall be restored to original state at no additional compensation.
- L. **Repair all sewers damaged by operations. Any repair such as top hats or resin patching must be pre-approved by the owner**

3.6 PUMPING, BYPASSING AND DEWATERING

- A. The CONTRACTOR must submit a bypass pumping plan to the City of St. Charles Sewer Division for their approval prior to commencing any work on this project.**
- B. Dewater when groundwater table is such that dewatering is required to perform operations.
- C. Provide all flow controls.
1. Costs for plugging or blocking, pumping, bypassing and dewatering are incidental to this Contract.

END 13514



ST. CHARLES

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